

NEW LAND MOLLUSCA OF THE JAPANESE EMPIRE.

BY H. A. PILSBRY AND Y. HIRASE.

The present contribution includes species from the main island of Japan, the Bonin Islands, Ryukyu Islands and Formosa. Recent explorations in the Tokara Group (small volcanic islets between Ōshima and Yakushima) have filled a gap in our knowledge of the land snails of the northeastern islands of the Ryukyu Curve, the *Clau-siliidæ* and operculate shells being especially interesting.

***Spiropoma japonicum tsushmanum* n. subsp.**

The spire is slightly higher than in *japonicum* and the last whorl descends more to the aperture. The cuticle is *extremely finely and densely striate*, duller and darker than in *japonicum*; finally, the columellar margin of the peristome is retracted more.

Alt. 8, diam. 14.2 mm.

“ 6.1, “ 11.7 “

Izuhara, Tsushima. Types No. 95762 A. N. S. P., from No. 1447a of Mr. Hirase's collection.

The several species and local forms of *Spiropoma* are only very slightly differentiated, and while the races of Tsushima, Quelpart, etc., have a certain individuality appreciable to the eye, their differences are of no great importance. The generic type seems to be very conservative and inflexible.

***Alycæus tsushmanus* n. sp.**

The shell is quite depressed, otherwise shaped as usual in the subgenus *Chamalycæus*; very pale reddish-brown or whitish. Spire low, convex, the apex projecting a little, brown. Whorls $3\frac{1}{2}$, the first $1\frac{1}{2}$ smooth, the rest sculptured with extremely delicate, close thread-striæ; just before the constriction of the neck the striation is distinctly stronger, and on the neck it is more or less obsolete. Later part of the last whorl is moderately swollen, then contracted. Beyond the contraction the neck is swollen in the middle, then descends a little to the aperture. The sutural “tube” is rather long, and very closely appressed, as if partially melted into the suture. The aperture is very oblique, circular. The peristome is strongly expanded and reflexed,

its face thickened and convex, the outer edge somewhat recurved. It is appressed for a short distance to the preceding whorl. The rather wide umbilicus is elliptical.

Alt. 3, diam. 5.8 mm.

The operculum is somewhat concave externally, and its whorls bear elevated cuticular appendages or raised cord-like spirals, wanting in the depressed central part, which is generally filled with dirt.

Tsutsu, Tsushima. Types No. 95737 A. N. S. P., from No. 1553 of Mr. Hirase's collection.

This is larger than other known Japanese species, with a more broadly expanded peristome. It is related to the Korean *A. cyclophoroides* Pils. and Hir., but differs by having a distinct swelling in the middle of the neck and in some minor details of sculpture and shape. By the characters of the operculum it belongs to the subgenus *Metalycaeus*.

In a race of the same species found at Sasuna, Tsushima, the shell is smaller, the diameter varying from 4 to 5 mm. This small form is No. 95738 A. N. S. P., No. 1553a of Mr. Hirase's collection.

Alycaeus tokunoshimanus principalis n. subsp.

The shell is much larger than *A. tokunoshimanus*, more or less deeply reddish-yellow tinted above, nearly white beneath, the embryonic whorls golden. Whorls $3\frac{1}{2}$, the last half of the last whorl very much inflated, then contracted into a rather small neck, beyond which the whorl is strongly deflexed. Very closely and finely thread-striate, more closely so on the inflated portion. Neck strongly bent downward. Peristome strongly reflexed, thickened and bevelled on the face; columellar border much narrower, its outer edge more or less straightened. Alt. 3.3, diam. 5 mm.

Ōgachi, Ōshima (Ōsumi). Types No. 95830 A. N. S. P., from No. 1330b of Mr. Hirase's collection.

This is the finest development of the *tokunoshimanus* series. That species was originally described from the smallest of the several forms now known.

Alycaeus tokunoshimanus mediocris n. subsp.

The shell is decidedly larger than *A. tokunoshimanus*, with the neck bent downward more, and more coarsely striate in front of the contraction. The sculpture of the neck is also coarser than *A. t. principalis*. Alt. 2.9, diam. 4.5 mm.

Yorojima (Ōsumi). Types No. 89926 A. N. S. P., from No. 1330 of Mr. Hirase's collection. Also found on Ikejijima (No. 89927 A. N. S. P., and 1330a coll. Hirase).

Alycæus lævis n. sp.

A *Chamalycæus* resembling *A. tokunoshimanus* in general form; openly umbilicate; spire low, conoidal, the first whorl projecting. Whorls $3\frac{1}{2}$, regularly increasing to the middle of the last whorl, where it rapidly enlarges, becoming much inflated. The inflation is terminated by a moderately contracted neck which curves down to the aperture. There is a prominent swelling around the neck in the middle. The "tube" is rather long and pressed into the suture. The surface is smooth, lightly marked with growth-lines, but on the inflation there are distinct fine and close striæ. The neck is smooth and glossy. The aperture is very oblique; peristome expanded, usually dilated to form a short lobe at the posterior angle. In fully mature individuals an inner rim is built out shortly beyond the expansion. Alt. 3, diam. 4 mm.

Nakanoshima (Ōsumi). Types No. 95831 A. N. S. P., from No. 1514 of Mr. Hirase's collection. It occurs also on Suwanosejima.

In having a smooth surface, marked with slight growth-lines only, becoming striate on the inflation, this species is very distinct from other Japanese and Ryukyuan forms. The rounded swelling on the neck is a further distinguishing character.

Diplommatina paxillus ultima n. subsp.

The shell is somewhat more robust than *D. paxillus* from Shanghai or Cheju, Quelpart. The peristome is less angular at the foot of the columella,—only very indistinctly so. The peristome is doubled, or there is a wrinkle or two behind the outer lip. Adults vary from reddish-brown to nearly white.

Kashitake, Tsushima. Types No. 95662 A. N. S. P., from No. 1554a of Mr. Hirase's collection. Also taken at Koje (Island of Koje), Korea, No. 95660 A. N. S. P., from No. 1531 of Mr. Hirase's collection.

D. paxillus (Gredler) is a very widely distributed species, ranging from Hunan to the Korean Archipelago, with closely related forms in Formosa and Tsushima. In the present state of our collections it is not easy to define subspecies. A form from Mokpo, Korea (No. 1531a of Mr. Hirase's collection), is similar to the shells from Koje Island, except that there is a distinct angle at the foot of the columella. The form from Quelpart is very close to typical Chinese *D. paxillus*.

Diplommatina yonakunijimana n. sp.

The shell is narrow, the penultimate whorl much the largest, those above tapering in a rather long cone with straight sides; pale brown; sculpture of delicate thread-like striæ, wanting in the region of the constriction and on the last half or more of the last whorl. There are

8 whorls, the first $5\frac{1}{2}$ convex, regularly and slowly increasing; the next enlarges more rapidly and is the widest, most convex whorl. It contracts suddenly to the constriction, which lies one-fourth of a whorl back of the peristome. The front of the last whorl has very widely spaced striae when unworn, but the last half is smooth and glossy. It ascends very little. The palatal plica is short. It is faintly visible above the suture in the thinnest shells, but most adults are too opaque to show it externally. The aperture is subcircular, somewhat oblique. Parietal callus thin, its edge scarcely thickened, ascending about half way to the suture. Columellar lamella thin and small, its spiral continuation inward being thin and rather low.

Length 3.1, diam. 1.4 mm.

Yonakunijima, Ōsumi. Types No. 95675 A. N. S. P., from No. 1510 of Mr. Hirase's collection.

In this species the last fourth of the penultimate whorl, in front of the constriction, is very narrow. It is related to *D. kumejimana* P. and H., but differs by its far more widely spaced riblets.

***Diplommatina okiensis tsushimana* n. subsp.**

The shell is like *D. collarifera* S. and B. in shape, but differs as follows: The delicate thread-like striae of the last two whorls are more widely spaced, and on the next earlier two whorls they are still more spaced. The palatal plica is very short and lies under the parietal callus. The spiral columellar lamella within the last whorl is thin and much lower than in *collarifera*. *D. okiensis* is very similar, but *tsushimana* differs by having the striae more widely spaced throughout. The shell is pale brown, and resembles *okiensis* in the aperture and collar.

Length 3.9, diam. 1.9 mm.; whorls $6\frac{1}{2}$.

Tsutsu, Tsushima. Types No. 95664 A. N. S. P., from No. 1554 of Mr. Hirase's collection.

***Diplommatina nesiotica* n. sp.**

A species of the subgenus *Sinica*. The lower two whorls form a cylindric portion, those above taper rapidly in a straight-sided cone about one-third the total length of the shell. It is pale red or grayish-white, with sculpture of very delicate hair-like striae, which are rather closely placed on the last two whorls, more spaced on the two preceding. Whorls slightly exceeding 6, quite convex, regularly and slowly widening to the penultimate, which enlarges rapidly and is more swollen. It contracts rather strongly to the constriction, which varies in position from submedian in front to nearly over the inner edge of the columella.

The last whorl ascends moderately to the lip, and is usually worn nearly smooth. The palatal plica is short, and either wholly to the left of the parietal callus, or its inner half may be under the callus. The aperture is rounded, a little longer than wide. Peristome thin, rather narrowly reflexed, sometimes very indistinctly subangular at the base of the columella. The parietal callus spreads rather extensively upward, and has a thin, raised edge. The columellar tooth is so deeply immersed that it is not visible in a front view.

Length 3, diam. 1.8 mm.

Suwanosejima, Ōsumi. Types No. 95668 A. N. S. P., from No. 1587 of Mr. Hirase's collection. Also found on the adjacent islands Akusekijima and Nakanoshima, of the Tokara group.

This species is related to *D. saginata* of Ōshima and *D. tanegashimæ* of Tanegashima, both of them much smaller species. *D. tanegashimæ* is also more slender. *D. saginata* is a common and characteristic species of Ōshima. It is very similar to *D. nesiotica* but always much smaller, so far as present collections show.

Specimens from Akusekijima and Nakanoshima are a trifle smaller than the types from the intermediate island Suwanosejima, measuring 2.5 to 2.8 mm. long. The palatal plica is slightly longer, and in some specimens the columellar tooth is visible in a front view.

Diplommatina hirasei Pilsbry n. sp.

The shell is large for a *Sinica*; the last two whorls, form more than half the total length, are cylindric, upper portion conic with straight sides. Whorls fully $6\frac{1}{2}$, moderately convex, the last strongly ascending in front, having a very strong, narrow ridge or collar a short distance behind the lip, the back of the collar opaque whitish. Constriction very slight, median in front. Color dull red. Sculpture of very delicate hair-like striæ, closer and finer on the last two whorls than on the preceding two, and usually worn from fully adult shells. The aperture is circular, orange colored within; peristome reflexed and somewhat thickened, continued in a raised ledge across the parietal wall, reaching to or almost to the suture. Palatal plica rather long and wholly covered by the parietal callus. Columellar tooth strong, the lamella within moderately high but thin. Internal parietal lamella low.

Length 4.75, diam. 2.5 mm.

Gakuenji, Izumo. Types No. 95670 A. N. S. P., from No. 1596 of Mr. Hirase's collection. Also Makuragisan, Izumo, No. 95669 A. N. S. P.

This largest of the Japanese *Diplommatinas* is in every way more

robust than *D. collarifera* S. and B. or *D. okiensis* P. and H. It further differs by having the parietal callus extended nearly to the suture, and the palatal plica lies wholly or almost wholly under the parietal callus.

Eulota (Euhadra) contraria n. sp.

The shell is depressed, biconvex, umbilicate, angular at the periphery, thin, greenish-yellow with a narrow dark red-brown band on the peripheral angle and narrowly visible above the suture on the last $1\frac{1}{2}$ whorls; inner whorls suffused with reddish-brown. Surface but slightly shining. First $1\frac{3}{4}$ whorls, forming the embryonic shell, are convex, with a close sculpture of low granules arranged in obliquely descending series. The next $1\frac{1}{2}$ whorls have weak growth-lines and minute, rather closely arranged papillæ scarcely noticeable in some specimens. The last two whorls have irregular growth-lines, and some shallow, irregular spiral sulci, most obvious on the base; there are also minute papillæ visible in places. Whorls $5\frac{1}{2}$, the first $1\frac{1}{2}$ convex, the rest convex below the suture, then flattened. The last whorl scarcely descends in front, and is convex below. The aperture is oblique, wide, lunate. Peristome white, the upper margin expanded, the outer and basal margins rather narrowly reflexed. The parietal callus is extremely thin.

Alt. 15, diam. 26 mm.

“ 14.3, “ 25 “

Kōshun, South Formosa. Types No. 95838 A. N. S. P., from No. 1581 of Mr. Hirase's collection.

This is a species of the *E. succincta* group. *E. formosensis* differs by being more elevated, with the lip sinuous above and in having very minute spiral striation on the last whorl. *E. succincta* is more compact, with the last whorl narrower (viewed from above), and the umbilicus is much smaller. The sculpture also differs in various details.

A specimen of *E. contraria* a little less mature than the type has the last whorl reddish-brown, the spire paler. It is banded like the type specimen. Only 10 examples of this fine snail were taken.

Eulota (Euhadra) picta n. sp.

The shell is rather narrowly umbilicate, somewhat depressed, with conic spire; rather solid; pale yellow, with two broad dark reddish-brown bands, the upper band extending from just below the periphery half way to the suture, and ascending the spire above the suture, the last 2 or $2\frac{1}{2}$ whorls are therefore bicolored above; on earlier whorls the

band becomes light reddish-brown and spreads over the surface of the whorls. The basal band is wider than the other, fading out on its inner edge. There is also a small umbilical patch of the same dark color. The surface is somewhat glossy, the first 4 whorls having a microscopic sculpture of minute raised points, regularly arranged (as in *Chloritis*); last whorl marked with growth-lines, not punctate. Whorls $5\frac{1}{2}$, moderately convex, very slowly widening, the last rounded peripherally but showing the faint trace of a peripheral angle; not descending in front; base somewhat flattened. The aperture is but little oblique, wide, banded inside. Peristome narrowly reflexed, colored by the bands, dilated at the columellar insertion, half concealing the umbilicus.

Alt. 22, diam. 30.2 mm.

" 20.7, " 29.0 "

Yonakuni-jima, Ryukyu. Cotypes No. 95837 A. N. S. P., from No. 1507 of Mr. Hirase's collection.

A very handsome species of the *caliginosa* group, closely resembling *E. okinoerabuensis* in shape, but the last whorl, viewed from above, is narrower, and the minute sculpture of the spire is different. The somewhat flattened base and the shape of the basal lip are features like *E. caliginosa*.

Eulota luhuana latispira n. subsp.

The shell is large, bright greenish-yellow, with three brown bands, coarsely striate, with the usual fine spiral lines. The spire is very wide, whorls more slowly and more regularly increasing than in *luhuana* or *senckenbergiana*, the last whorl narrower. Umbilicus ample, regularly tapering within.

Alt. 30, diam. 48 mm.; whorls $6\frac{1}{2}$.

Hakusan, Kaga. Types No. 83913 A. N. S. P., from No. 562a of Mr. Hirase's collection.

The spiral bands may be dark and conspicuous or very pale. The lip is flesh colored, varying in shade in different shells.

Eulota (Ægista) perangulata n. sp.

The shell is umbilicate (width of umbilicus contained $4\frac{1}{2}$ times in the diameter of the shell), conic above, convex below, strongly angular at the periphery; light brown, dull, finely striate, sometimes with some very delicate, short, thread-like cuticular appendages on some of the striae in places. Under the cuticle there are very fine spiral lines, visible just in front of the parietal callus. Whorls $6\frac{1}{4}$, moderately convex, slowly increasing, the last strongly angular peripherally, the

angle disappearing immediately behind the peristome. The whorl scarcely descends in front, not angular around the umbilicus. The aperture is rounded-lunate; peristome thin, forming three-fourths of a circle; the upper margin is slightly expanded, outer and basal margins reflexed. Parietal callus merely a thin film.

Alt. 8.5, diam. 13.7 mm.

" 9, " 13 " "

Izuhara, Tsushima. Cotypes No. 95859 A. N. S. P., from No. 1551 of Mr. Hirase's collection.

This is a strongly angular species of the *E. aperta* group. The peristome is like that of *E. aperta tumida*. Neither *E. aperta* or *E. mimula* is known from the island of Kyushu.

Trishoplita cretacea hypozona n. subsp.

The shell is conic, white with a broad purplish-brown or rich reddish-brown zone on the base. The surface is rather finely striate, the striæ elegantly granulose, especially on the base.

Alt. 14, diam. 17.8 mm.; whorls $6\frac{1}{4}$.

" 12, " 16.8 " " 6.

Mikuriya, Hoki. Types No. 95862 A. N. S. P., from No. 387a of Mr. Hirase's collection. It also occurs at Mihonoseki and Gakuenji, Izumo, and at Itsukushima, Aki.

The shell is generally in large part denuded of cuticle, as in *T. cretacea*. The granules on the striæ of the base are irregular, not arranged in spiral lines. Some specimens from Izumo are smaller:

Alt. 12.2, diam. 16 mm.; whorls $6\frac{1}{4}$.

" 10, " 14.5 " " 6.

A single example seen from the province Aki resembles *hypozona* in shape and color, but differs in minute sculpture, the striæ being superficially cut by fine spiral lines, chiefly evident on the base, in place of the irregular granulation of typical *hypozona*. This form (No. 87678 A. N. S. P., No. 1190 of Mr. Hirase's collection) may be found separable from *hypozona*, yet we prefer to refer it to that race until more material can be brought together.

T. c. hypozona inhabits the provinces along the northern shore of the western end of the main island of Japan.

Ganesella albida mollicula n. subsp.

The shell is larger than *G. albida*, thinner, more transparent, bluish-milky above the keel, transparent yellowish below, sculptured quite distinctly with close microscopic spiral lines; base decidedly more convex than in *albida*, the mouth and columella being longer; whorls more numerous.

Length 21, diam. 14.5 mm.; whorls $6\frac{1}{2}$.

Tōshun, South Cape of Formosa. Type No. 95753 A. N. S. P., from No. 1584 of Mr. Hirase's collection.

The typical measurements of *G. albida* (H. Ad.) are alt. 15, diam. 14 mm. An example of the typical form from Sammaipo before us measures, alt. 14.5, diam. 12 mm., whorls $5\frac{1}{2}$. Only three examples of *G. a. mollicula* were taken.

Ennea iwakawa yonakunijimana n. subsp.

Closely related to *E. i. miyakojimana* P. and H., but the aperture is more contracted by the large teeth, and the spire tapers more, being widest below the middle, at the penultimate whorl. Whorls $6\frac{3}{4}$ to $7\frac{1}{2}$.

Length 4, diam. 1.9 mm.

Yonakunijima, Loochoo. Types No. 95715 A. N. S. P., from No. 1511 of Mr. Hirase's collection.

Petalochlamys rejecta (Pfr.).

Helix rejecta Pfr., P. Z. S., 1859, p. 25, No. 9, pl. 43, fig. 1; Monographia Hel. Viv., V, 142.

Microcystis? rejecta Mlldff., Jahrb. D. M. Ges., X, p. 365.

Hyalina mamillaris Heude, Moll. Terr. Fleuve Bleu, 1882, p. 15, pl. 19, fig. 8.

This species was described from a specimen taken by Robert Fortune in "northern China." Dr. von Moellendorff has pointed out that most of the shells discovered by Fortune are from places inland from Shanghai, toward the tea district of Wu-yuan in the Province An-hui. Hangchow, where several of Fortune's species occur, such as *Plectotropis brevibarbis*, is between Shanghai and Wu-yuan. A *Petalochlamys* from Hangchow, taken by Mr. Nakada, agrees with Pfeiffer's description of *H. rejecta*.

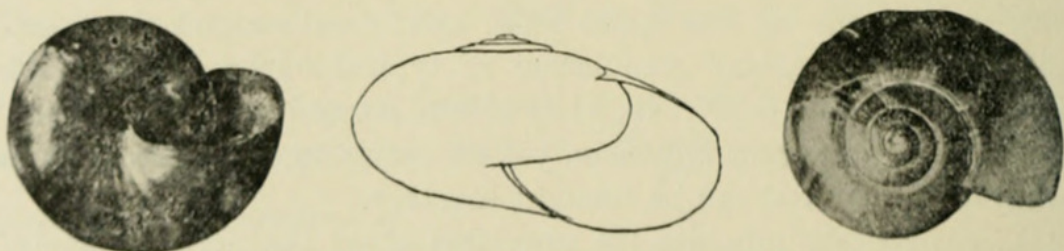


Fig. 1.—*P. rejecta* Pfr., Hangchow, China.

The shell is strongly depressed, with very low-conic spire; of the usual thin substance and of a greenish-yellow color above, subtransparent, the base perceptibly paler. The umbilicus is extremely narrow, its width contained about 12 times in that of the shell. The surface is polished, and shows under a compound microscope very

close, engraved spiral lines, chiefly below the suture, wanting on the first whorl, and becoming weak on the last whorl and the base. Large specimens have just 5 whorls; these increase rather slowly to the last which is very wide—wider than in related species. Seen from above the spire is small, its diameter hardly 46 per cent. of the total diameter of the shell. The last whorl is equally rounded at the periphery. The aperture is broadly lunate.

Alt. 7, greater diam. 13.5, lesser 11.3 mm.

The specimens described and figured are from Hangchow, Chekiang Province, China; No. 95800 A. N. S. P., from No. 1476 of Mr. Hirase's collection.

P. rejecta is related to *P. planula* and *P. planata* of Heude, but viewed from above the last whorl is wider than in either of these species, both of which moreover are smaller. Dr. O. von Moellendorf found *rejecta* in Lü-shan, near Kiukiang. P. Fuchs collected it in southern Hunan and northern Guangdong, and Father Heude described specimens from the former locality as *H. mamillaris*, a species which von Moellendorff referred to *rejecta* as a synonym. The first published record of *rejecta*, after the original reference, was by A. Adams, who identified it from Tsushima (*Annals and Magazine of Natural History*, 4th series, I, 1868, p. 467). Among difficult and critical species an identification by Adams has slight value. Von Martens, Reinhardt and Kobelt have repeated Adams' record, but without further confirmation. I do not know the locality of the specimen figured by Dr. Reinhardt. Kobelt has copied these figures. On the whole, it seems hazardous to admit *P. rejecta* to the fauna of Japan or Korea without better evidence than we now have. It will probably prove to be peculiar to China, especially in the district below the mouth of the Yangtze, in An-hui and Chekiang Provinces. At all events, the somewhat similar *Petalochlamys* known to us from Tsushima is certainly a species distinct from *P. rejecta*.

***Petalochlamys subrejecta* n. sp.**

Macrochlamys rejecta Pfr., Hirase, The Conch. Magazine, II, p. 5, pl. 13, fig. 13, not *Helix rejecta* Pfr.

Macrochlamys subrejecta Pils. and Hir., Conch. Mag., II, p. 76 (no description).

Shell depressed, very narrowly umbilicate, very thin and fragile, glossy, of a pale brown tint, or very pale greenish-yellow. The surface is weakly marked with growth-lines, and under the compound microscope shows very fine, close, superficial spiral striæ, wanting on the first whorl, becoming weak on the last whorl. The spire is low-conoidal, wide; its diameter, viewed from above, is 58 per cent. the

total diameter of the shell. Whorls $5\frac{3}{4}$, slowly increasing, the last much wider, rounded at the periphery. The suture is narrowly transparent-margined. Umbilicus very small, its diameter contained about 20 times in that of the shell. Aperture lunate.

Alt. 7.6, greater diam. 13.2, lesser 12 mm.

Sasuna, Tsushima. Types No. 95802 A. N. S. P., from No. 1549a of Mr. Hirase's collection. Also found at Fusan, Korea.

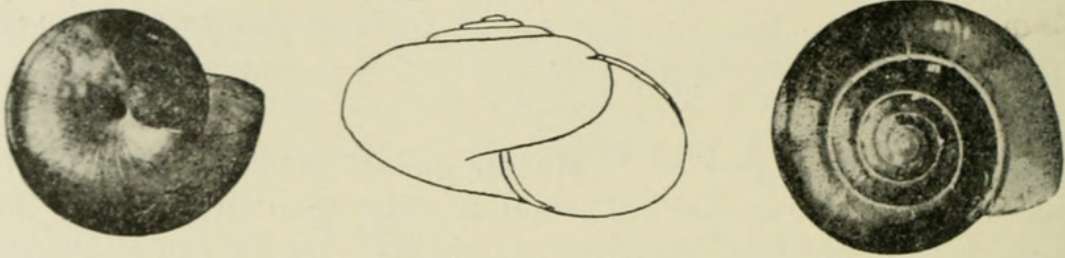


Fig. 2.—*P. subrejeta*.

Compared with the Chinese *P. rejecta*, this species is less depressed and has, viewed from above, a much wider spire and narrower last whorl. The aperture is consequently higher and less dilated laterally. The spiral sculpture is not quite so deeply engraved, and the umbilicus is wider than in *P. rejecta*, though still very narrow. *P. subrejeta* is probably the shell A. Adams reported from Tsushima as *Macrochlamys rejecta* Pfr.

Petalochlamys serenus n. sp.

The shell is depressed, very narrowly umbilicate, amber colored, subtransparent, very fragile. The surface has delicate, close microscopic engraved spirals both above and below. Spire slightly convex; whorls 4, but slightly convex, slowly increasing to the last, which is much wider, rounded peripherally. The suture is narrowly transparent-margined. Aperture lunate, columellar lip triangularly dilated at the insertion, thin; columella vertical.

Alt. 2.8, greater diam. 4.7, lesser 4 mm.

Kaminoyama, Kunchan, Okinawa. Types No. 95809 A. N. S. P., from No. 1441 of Mr. Hirase's collection.

This small, very fragile shell is related to *P. doenitzi* (Reinh.), but the last whorl is wider in a view from above, and is somewhat more ample.

Petalochlamys perfragilis sakui subsp. n.

The shell is more depressed than *P. perfragilis* and *P. p. shikokuensis*, and is a little more openly umbilicate. Surface brilliantly polished, almost smooth, but under a compound microscope very

faint traces of spiral striæ may be seen in some places, and on the base of the last whorl these incised spirals sometimes become distinct. The suture is white-edged.

Alt. 8.7, greater diam. 15, lesser 13.2 mm.

Yaku-shima (Ōsumi), types No. 85729 A. N. S. P., from No. 1081 of Mr. Hirase's collection. It also occurs on Kuchinoerabu-shima (Ōsumi).

Kaliella gudei mutsuensis n. subsp.

The shell is perforate, conic, having an acute peripheral keel, visible on the spire as a thread in the suture; irregularly striatulate and glossy. Whorls $4\frac{3}{4}$ to 5, convex. Aperture lunate, truncate at the ends. Columellar margin vertical, slightly thickened, reflexed at the insertion.

Alt. 3.3, diam. 4.7 mm.

Osoreyama, Mutsu. Types No. 96178 A. N. S. P., from No. 1445 of Mr. Hirase's collection.

This form differs from *K. gudei* by the number of whorls and much smaller size. The whorls are more convex than in *K. ceratodes* (Gude), and the columella is less calloused. In *K. koshinoshimana* the whorls are more closely coiled. *K. g. mutsuensis* differs from *K. sororcula* by its *vertical columella*, that of *K. sororcula* being oblique to the shell-axis.

Kaliella subcrenulata satsumana n. subsp. Fig. 3.

A form decidedly larger than *K. subcrenulata*. Under the compound microscope there are seen to be fine thread-like vertical striæ on the upper surface and on a band below the periphery. The rest of the base is glossy, but shows a few fine spiral lines.

Alt. 2.3, diam. 3.25 mm.

Yamakawa, Satsuma. Types No. 96176 A. N. S. P., from No. 1593 of Mr. Hirase's collection.

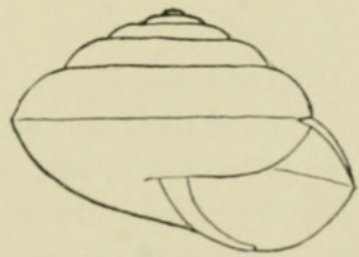


Fig. 3.

Kaliella longissima n. sp. Fig. 4.

The shell is minutely perforate, conic-turrite, with nearly straight lateral outlines and obtuse summit; pale yellowish, subtransparent. Surface glossy, almost smooth. Whorls $9\frac{1}{2}$, very slowly increasing, moderately convex, the last rounded peripherally, though there is a very delicate thread-like keel. Base convex. Aperture semilunar, the columella vertical, with reflexed edge.

Alt. 4.25, diam. 2.3 mm.

Sasuna, Tsushima. Types No. 96177 A. N. S. P., from No. 1556 of Mr. Hirase's collection.

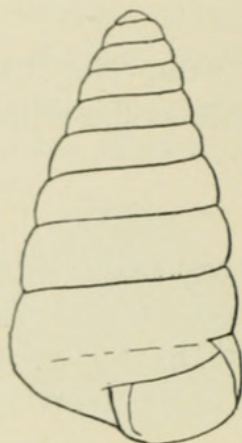


Fig. 4.

This is the most lengthened Japanese *Kaliella* known to us, being much longer than *K. præalta*. The Indian *K. elongata* G.-A. has about the same proportions, but differs by its strongly keeled last whorl, the convex outlines of the spire, etc.

***Kaliella boninensis* n. sp.**

The shell is perforate, depressed, the spire convexly conoidal, with obtuse, rounded summit, base convex, the periphery angular; brown. Surface rather dull above, more glossy beneath; first half whorl smooth, next whorl sharply striate and decussated with fine spiral lines; following whorls are densely, finely and sharply striate, with very faint traces of spiral lines in places; the base is smoothish, but not much polished; showing faint traces of spiral lines in places. Whorls $3\frac{3}{4}$, moderately convex.

Alt. 1.75, diam. 2.66 mm.

Anijima, Ogasawara (Bonin Islands). Types No. 95867 A. N. S. P., from No. 1500 of Mr. Hirase's collection.

This small species is not closely related to any known Ogasawaran or Japanese form. Whether it really belongs to *Kaliella* is perhaps doubtful.

***Sitala ultima* n. sp.**

The shell is perforate, conic, with the last whorl large; very fragile, amber colored, rather shining, with a silky luster above, more glossy below. Sculpture of excessively fine, close vertical striæ decussated by very delicate spirals, the base having engraved spiral lines. The spire is straightly conic. Whorls $4\frac{1}{2}$, convex, the last angular at the periphery in front, becoming inflated and rounded in the last half. Base rather convex.

Alt. 2.3, diam. 2.9 mm.

Kaminoyama, Uzen. Types No. 95908 A. N. S. P., from No. 1443 of Mr. Hirase's collection.

This delicate snail is smaller than the related *S. reinhardti*, and has much more distinct microscopic sculpture. It lives farther north than any other known *Sitala*.

***Ena luchuana nesiotica* n. subsp.**

The shell is rimate, very thin, *purplish-brown*, more or less flecked with yellow on the upper whorls, by incipient disintegration of the

cuticle. The spire tapers regularly to the small but obtuse apex. Whorls $7\frac{1}{2}$. The earliest whorls are worn but seem to be smooth. On the third whorl very fine, close spiral striæ appear, and by the decussation of growth-lines the surface becomes minutely granular. The last whorl or two are more coarsely closely granulose. The aperture is slightly oblique, dark inside; peristome expanded, slightly thickened within, white. Columella dilated and forked above. Parietal callus very thin and transparent.

Length 17, diam. 7.0 mm.

“ 17.2, “ 6.9 “

“ 16, “ 7.0 “

Kuroshima, Ōsumi. Types No. 95768 A. N. S. P., from No. 1546a of Mr. Hirase's collection. Also Yakushima, No. 1546 of Mr. Hirase's collection, 95769 A. N. S. P.

This form differs from *Ena luchuana* and *E. l. oshimana* by the dark coloration, without light streaks, and the more pronounced granulation. The specimens from Yakushima seem to be identical in all respects with those from Kuroshima.



Pilsbry, Henry Augustus and Hirase, Y. 1909. "New land mollusca of the Japanese empire." *Proceedings of the Academy of Natural Sciences of Philadelphia* 60, 586–599.

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